CHAPTER 6-02-03
AIRPORT RUNWAY APPROACH HAZARDS

6-02-03-01. General. The following rules, criteria, regulations, and minimum standards governing the construction or maintenance of hazards or obstructions near runway approaches to any airport, landing area, or landing strip in North Dakota that is open for public use, whether publicly or privately owned, is hereby adopted by the North Dakota aeronautics commission pursuant to authority set forth in North Dakota Century Code section 2-03-12.

General Authority: NDCC 2-03-12, 2-05-08
Law Implemented: NDCC 2-03-12, 2-05-08

6-02-03-02. Procedure for determining obstructions. Objects which project above the landing approach area or near the runway approaches or within the runway approaches of any airport, landing area or landing strip as described and defined in section 6-02-03-03 shall be considered obstructions to air navigation and are hereby prohibited. Objects exceeding the limiting heights above ground described in section 6-02-03-04 shall be considered obstructions to air navigation and are hereby prohibited. Objects exceeding the limiting heights above ground described in section 6-02-03-05 shall be considered obstructions to air navigation and are hereby prohibited, unless a special aeronautical study made by the aeronautics commission indicates otherwise.

General Authority: NDCC 2-03-12, 2-05-08
Law Implemented: NDCC 2-03-12, 2-05-08

6-02-03-03. Airport referenced imaginary surfaces. These imaginary surfaces are established by reference to the airport, landing area, or landing strip as described below and consist of approach surfaces, horizontal surface, conical surface, and transitional surfaces.

1. **Approach surfaces.** The approach surface is an inclined plane located directly above the approach area. The dimensions of the approach area are measured horizontally.

2. **Length.** The approach area has a length of ten thousand feet [3,048 meters] beginning two hundred feet [60.96 meters] outward from the end of each runway and extending outward, ending at a point ten thousand two hundred feet [3,108.96 meters] from the end of the runway on the extended center line of the runway. (Note: See Exhibit A, attached to

this chapter and made a part of this section.) In addition, the approach areas of all runways which may be used for instrument operation shall extend outward an additional forty thousand feet [12,192 meters]. The approach area requirements for instrument runways shall apply to all runways which may be used for instrument operations and to both ends of such runways.

3. **Width.** For all runways, landing strips, or landing areas not intended for instrument operation, the approach area has a total width at the end adjacent to the runway, and at the approach end respectively as follows: For personal airports, two hundred feet [60.96 meters] and two thousand two hundred feet [670.56 meters]; for secondary airports, two hundred fifty feet [76.2 meters] and two thousand two hundred fifty feet [685.8 meters]; for feeder service airports, three hundred feet [91.44 meters] and two thousand three hundred feet [701.04 meters]; for trunk line airports, four hundred feet [121.92 meters] and two thousand four hundred feet [731.52 meters]; and for express airports and larger airports, five hundred feet [152.4 meters] and two thousand five hundred feet [762 meters]. (See Exhibit A.)

4. **Classification of airports, landing areas, and landing strips.**

   a. A personal airport or landing strip is one with a runway up to three thousand five hundred feet [1,066.8 meters] in length.

   b. A secondary airport or landing strip is one with a runway up to three thousand five hundred feet [1,066.8 meters] in length.

   c. A feeder airport or landing strip is one with a runway of not less than three thousand five hundred feet [1,066.8 meters] in length.

   d. A trunk line airport or landing strip is one with a runway of not less than four thousand two hundred feet [1,280.16 meters] in length.

   e. An express airport or landing strip is one with a runway of not less than five thousand feet [1,524 meters] in length.

   f. A continental airport or landing strip is one with a runway of not less than five thousand nine hundred feet [1,798.32 meters] in length.

   g. An intercontinental airport or landing strip is one with a runway of not less than seven thousand feet [2,133.6 meters] in length.

   h. An intercontinental express airport or landing strip is one with a runway of not less than eight thousand four hundred feet [2,560.32 meters] in length.

5. **Width for instrument runways.** The approach area is symmetrically located with respect to the extended runway center line, and for all

instrument runways has a total width of one thousand feet [304.8 meters] at the end adjacent to the runway. The approach area flares uniformly to a total width of four thousand feet [1,219.2 meters] at the end of the ten thousand foot [3,048 meter] section and to a total width of sixteen thousand feet [4,876.8 meters] at the end of the additional forty thousand foot [12,192 meter] section.

General Authority: NDCC 2-03-12, 2-05-08
Law Implemented: NDCC 2-03-12, 2-05-08

6-02-03-04. Procedure for determining limiting heights above ground for obstructions.

1. **Slope.** For airports and landing strips classified as personal or secondary the slope of the runway approach surface is twenty to one. For feeder, trunk line, express, and higher type of airports or landing strips, with runways not intended for instrument operation, the slope of the runway approach surface is forty to one.

   For instrument runways the slope of the approach surface along the runway center line extended is fifty to one for the inner ten thousand foot [3,048 meter] section and forty to one for the outer forty thousand foot [12,192 meter] section.

2. **Horizontal surface.** A horizontal plane one hundred fifty feet [45.72 meters] above the established airport elevation, the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is:

   a. Five thousand feet [1,524 meters] for all runways designated as utility or visual.

   b. Ten thousand feet [3,048 meters] for all other runways.

   The radius of the arc specified for each end of a runway will have the same arithmetical value. That value will be the highest determined for either end of the runway. When a five thousand foot [1,524 meter] arc is encompassed by tangents connecting two adjacent ten thousand foot [3,048 meter] arcs, the five thousand foot [1,524 meter] arc shall be disregarded on the construction of the perimeter of the horizontal surface.

3. **Conical surface.** The conical surface extends upward and outward from the periphery of the horizontal surface with a slope of twenty to one measured in a vertical plane passing through the airport reference point. Measured radially outward, from the periphery of the horizontal surface, the conical surface extends for a horizontal distance of four

thousand feet [1,219.2 meters] for all smaller airports and landing strips, such as the "personal" and "secondary" classes. The conical surface extends five thousand feet [1,524 meters] for feeder, trunk line, express, and continental airports and seven thousand feet [2,133.6 meters] for intercontinental and intercontinental express airports.

4. **Transitional surfaces.** The transitional surfaces are inclined planes with a slope of seven to one measured upward and outward in a vertical plane at right angles to the center line of the runway. The transitional surfaces, symmetrically located on either side of the runway or landing strip, extend upward and outward from a line on either side of the runway which is parallel to and level with the runway center line. These parallel lines are at a horizontal distance from the runway center line equal to one-half of the minimum width of the approach area indicated in subsection 3 of section 6-02-03-03. Transitional surfaces extend from the edges of all approach surfaces upward and outward to the intersection with the horizontal surface, or the conical surface. (See Exhibit A.)

   The approach surfaces for instrument runways projecting through and beyond the limits of the conical surface have a seven to one transitional surface extending a distance of five thousand feet [1,524 meters] measured horizontally from the edge of the approach surfaces and at right angles to the runway center line.

General Authority: NDCC 2-03-12, 2-05-08
Law Implemented: NDCC 2-03-12, 2-05-08

6-02-03-05. Other limiting heights above ground. In addition to the requirements in sections 6-02-03-02, 6-02-03-03, and 6-02-03-04, objects shall be considered obstructions to air navigation, unless special aeronautical study by the aeronautics commission indicates otherwise, if they are more than five hundred feet [152.4 meters] above ground or fall in the following categories:

1. **Instrument approach areas.** Objects in instrument approach areas, more than one hundred feet [30.48 meters] above the ground or one hundred feet [30.48 meters] above the elevation of the approach end of the runway, whichever gives the higher elevation of the object, within three statute miles [4.83 kilometers] of the runway end, and increasing in height above ground in proportion of twenty-five feet [7.62 meters] for each additional statute mile [1.61 kilometers] of distance outward from the runway end, but not to exceed two hundred fifty feet [76.2 meters] within ten statute miles [16.09 kilometers] of the runway end.

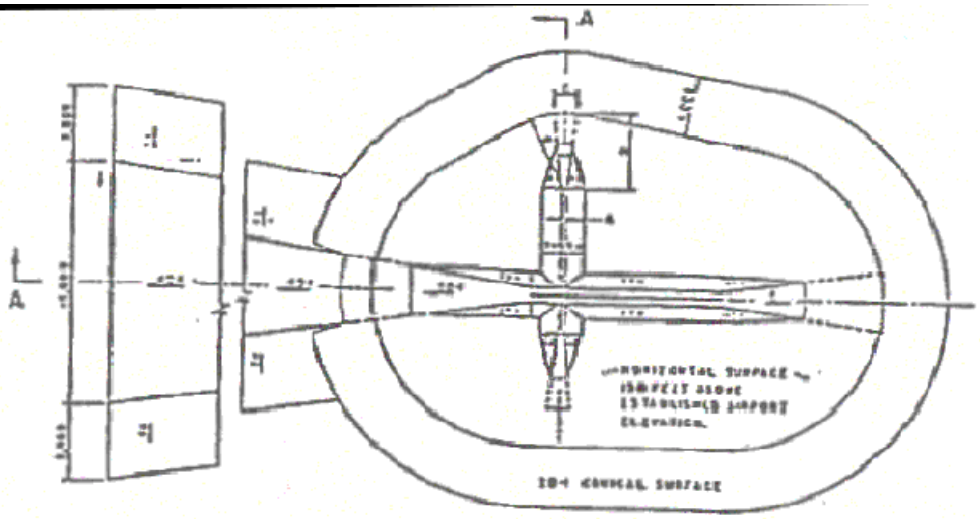
2. **Turning zone heights.** Objects more than one hundred seventy feet [51.82 meters] above the ground or more than one hundred seventy feet [51.82 meters] above the established airport elevation, whichever gives the higher elevation of the object, within three statute miles [4.83 kilometers] of the reference point of a feeder or larger class airport, and

increasing in height in the proportion of one hundred feet [30.48 meters] for each additional mile [1.61 kilometers] of distance from the airport, but not to exceed a maximum of five hundred feet [152.4 meters] above ground.

3. **Final approach for airports.** Objects whose elevation would increase the final approach minimum flight altitude. The final approach minimum flight altitude is normally established from the highest point within five statute miles [8.05 kilometers] of the center line of the final approach course of a radio facility used for final letdown to an airport, and extends for a distance of ten statute miles [16.09 kilometers] along this course outward from the radio facility. The radio facility may be a radio range, very high frequency omni directional range, nondirectional beacon (H marker), fan marker, or the outer marker of an instrument landing system.

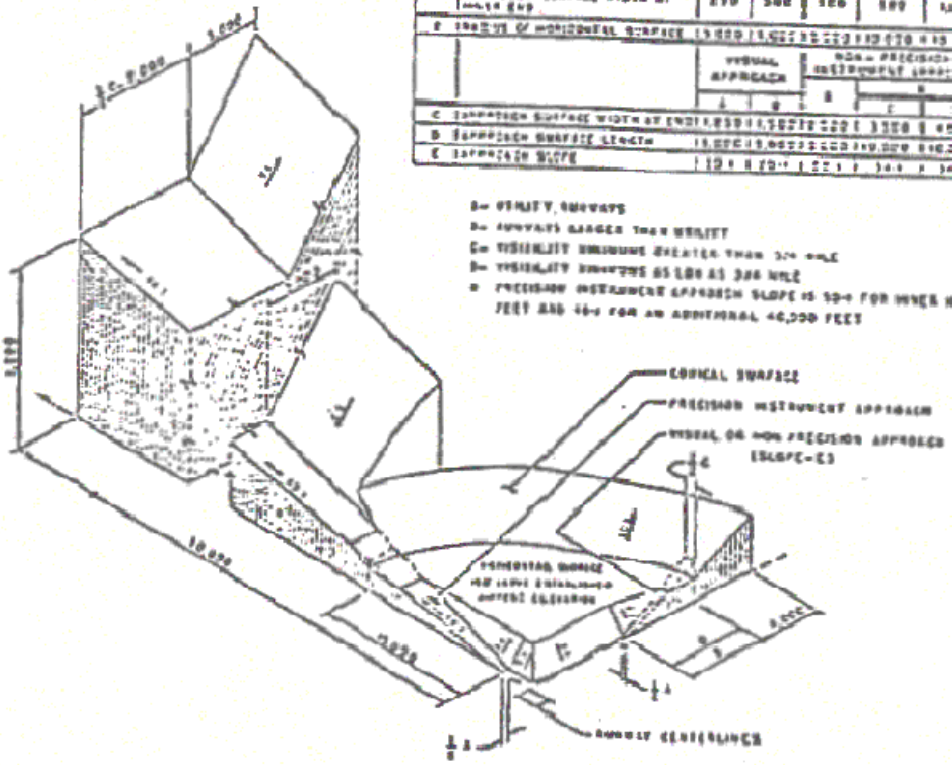
4. **Minimum flight altitude.** Objects within a civil airway or air traffic control area, more than one hundred seventy feet [51.82 meters] above the ground or more than an elevation that would require the increase in an established minimum flight altitude, whichever gives the higher elevation of the object. The minimum flight altitudes are normally established from the highest point within five statute miles [8.05 kilometers] of the center line of the civil airway or air traffic control area for the section of airway or control area affected.

General Authority: NDCC 2-03-12, 2-05-07, 2-05-08
Law Implemented: NDCC 2-03-12, 2-05-07, 2-05-08



DIM	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
		A	B	A	C	D	
A	WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END	250	500	500	500	1,000	1,000
F	WIDTH OF HORIZONTAL SURFACE	5,000	6,000	10,000	10,000	10,000	10,000
		VISUAL APPROACH		NON-PRECISION INSTRUMENT APPROACH			PRECISION INSTRUMENT APPROACH
		A	B	B	C	D	
C	APPROACH SURFACE WIDTH AT END	1,500	1,500	3,500	4,000	16,000	16,000
D	APPROACH SURFACE LENGTH	5,000	5,000	10,000	10,000	10,000	10,000
E	APPROACH SLOPE	20:1	20:1	34:1	34:1	34:1	50:1

B= UTILITY RUNWAYS
B= RUNWAYS LARGER THAN UTILITY
C= VISIBILITY MINIMUMS GREATER THAN 3/4 MILE
D= VISIBILITY MINIMUMS AS LOW AS 3/4 MILE
D PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AN ADDITIONAL 40,000 FEET



ISOMETRIC VIEW OF SECTION A-A

CIVIL AIRPORT IMAGINARY SURFACES

Exhibit A